|  |
| --- |
| **Patterns With Skip Counting**  \*Lesson is adapted from activities in *ThinkMath!,* Harcourt School Publishers, 2008. |
| **Mathematics, Grade 1** |
| **Materials:**   * Lesson 3 Game board * Number cube * Connecting cubes |
| **TEKS/SEs:**   * 1.4 – identify, describe, and extend concrete and pictorial patterns in order to make predictions and solve problems. * 1.5B – find patterns in numbers, including odd and even * 1.5C – compare and order whole numbers using place value * 1.5D – use patterns to develop strategies to solve basic addition and basic subtraction problems   **Objective 6 TEKS/SEs (Underlying Processes and Mathematical Tools):**   * 1.11A – identify the mathematics in everyday situations * 1.11B – solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness * 1.11C – select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in other to solve a problem * 1.11D – use tools such as real objects, manipulatives, and technology to solve problems * 1.12A – explain and record observations using objects, words, pictures, numbers, and technology * 1.12B – relate informal language to mathematical language and symbols * 1.13 – use logical reasoning; justify thinking using objects, words, pictures, numbers, and technology |
| **Lesson objective(s):**   * + Students will :     - Find multiples by skip-counting on the number line     - Practice finding multiples on a grid |
| **Differentiation strategies to meet diverse learner needs:**   * Problem- solving, inquiry-approach * Hands-on exploration * Collaboration and discussion |
| **ENGAGEMENT: Silent Teach**   * In Silent Teach, neither the teacher nor the students speak at all. Students must have “eyes on the teacher” to figure out what is happening. The teacher selects students to contribute – her choice, no hand-raising or volunteering. Students indicate with thumbs up-down-sideways whether they agree with a student contribution. * Using a secret sorting rule, silently start making jumps of three on a number line on the board. Start at zero and mark the numbers where each jump lands. * Silently, hand the marker to a student to jump to the next multiple of three. Use silent gestures to solicit thumbs-up or down from students, and to approve or correct the child’s decision. Repeat several times. Then break the silence, and have children describe what patterns they saw with jumping on the number line. |
| **EXPLORATION**  **Part 1**: More on Number Line   * Once the class has guessed the rule from Engagement, extend that idea with jumps that go to a new row, such as jumping from 9 to 12. * Once you have marked the multiples of three up to 30, discuss any patterns students see.   + *What patterns do you see in the numbers we have marked?*   **Part 2**: Game   * Pass out a game board to each pair of students. * Each player tosses a number cube (with the numbers 1 through 6) to determine the number to skip-count by.   + If a player tosses a one, he/she will skip-count by tens.   + Players in the same pair will not skip-count by the same number. * Each player secretly writes down a prediction of the number where the two players will meet. * Players take turns skip-counting by their numbers and recording each skip-count on the game board. Player 1 marks each jump with an X and Player 2 marks each jump with a circle.  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |  * When students find their first number that is marked with both an X and a circle, they reveal their predictions and compare them to the meeting number. The player whose prediction was closest to the actual number scores a point for this round. * If the predictions are equally close to the number, the players tie and both score a point. * Play for 4 rounds. The player with the most points wins. |
| **EXPLANATION**   * Students will explain their thinking and justify their solutions in groups and in whole-class discussion, as well as with drawings, diagrams, and oral explanations. |
| **ELABORATION**   * + Provide pairs with two different colors of connecting cubes.   + Assign a different skip-counting number to each pair.   + Partners begin by making a cube train showing this number. One partner records this number.   + The partners continue to add groups of cubes in alternating colors and to record the total number of cubes in the train.   + Once each pair has recorded 5 trains, have the different pairs in the class compare their lists to see if their lists have any numbers in common. |
| **EVALUATION**   * Observe students while they play the game:   + *Do they skip-count correctly?*   + *Are students counting on to get to the next number or have they begun to remember some of the multiples?*   + *Do they recognize patterns to help them find multiples?* |